

Priority Goals & Actions

Protecting the Public's Health & Promoting Safety

Citizens depend on the state's natural resources every day for water, food, safe shelter, and more. They count on the Wisconsin Department of Natural Resources (WDNR) to monitor activities with those resources and to protect them. Protecting the public's health and promoting safety are the WDNR's top priority.

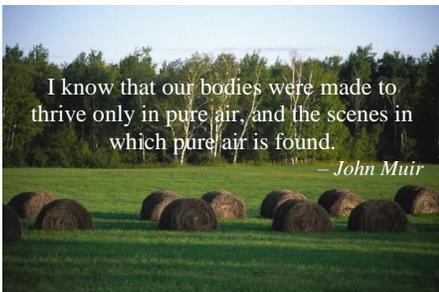
The Drinking Water and Groundwater program focuses on providing clean drinking water and protecting ground water in the state. All public water systems must meet drinking water standards as set under the federal Safe Drinking Water Act. The WDNR uses these same standards to advise private well owners whose drinking water quality has diminished so they may seek an alternate safe water source. They also regulates private well construction. State law prohibits installing wells within a certain distance of contaminant sources. The Bureaus of Waste Management, Watershed Management, and Remediation and Redevelopment are responsible for preventing and cleaning up groundwater and surface water contamination.

Prevention is the goal. The same is true for the Bureaus of Air Management and Waste Management, who monitor emissions of pollutants and the handling of waste. The fewer pollutants emitted into the atmosphere, the less contamination of soils and waters will be a concern. The less waste that is placed in landfills, the fewer landfills are needed and the lower the potential impacts on the environment.

Environmental protection program staff are responsible for enforcing performance standards specified in state code. Performance standards are generally set based on human and environmental health risks. For example, phosphorus limits for surface water are set based on the stream's or lake's ability to absorb excess phosphorus without environmental harm. Similarly, groundwater quality standards are set based on human and environmental health risk. When groundwater enforcement standards are exceeded, an investigation is done to determine the extent of the contamination and determine cleanup options. Similar action plans are in place for all environmental protection programs.

When the environment is threatened, the WDNR must look at the threat in the light of how to minimize its impact on the public and the environment in which they live. For example, fish advisories have been released warning about the dangers of consuming fish caught in certain Wisconsin waters. Also, forestry crews are always ready to put out forest fires that may threaten people's lives and their homes.

By prevention, monitoring, and maintenance, the WDNR promotes human health and safety even while protecting the state's natural resources. Staff members educate the public about the best ways to prevent dangerous situations. And when danger does



I know that our bodies were made to thrive only in pure air, and the scenes in which pure air is found.

— John Muir

Groundwater

Wisconsin receives an average of 30-32 inches of precipitation per year. Seventy-five percent evaporates or transpires through plants and never reaches surface water or groundwater. The six to ten inches that do not evaporate immediately or get used by plants, run off into surface water or soak into the ground, depending on local topography, soil, land use, and vegetation.

Water distribution is governed by a series of events known as the hydrologic or water cycle, which is kept in motion by solar energy and gravity. Start with a spring shower. As rain falls to the earth, some flows downhill as runoff to a stream, lake, or ocean. Some evaporates and plants take some up. The rest trickles down through surface soil and rock. This water eventually reaches the water table – the top of a saturated zone of soil or rock called an aquifer. The water contained in the aquifer is groundwater. Groundwater is discharged in wetlands, lakes, and streams – low places where the water table meets the land surface. The sun causes evaporation from these surface waters, and as water vapor accumulates in the atmosphere and clouds begin to form, the water cycle begins again.

Contamination of the groundwater can be linked to land use. Contaminants on the ground's surface can seep through the soil and turn up in drinking water, lakes, rivers, streams, and wetlands. Tracking and stopping sources of pollution can be expensive and time consuming. The best strategy is prevention. In the case of groundwater, prevention means looking at the ways we pollute water, and finding methods to keep those pollutants out.

The main municipal well in the Village of Granton in Clark County shows what can happen when groundwater contamination occurs. Gasoline from three filling stations with leaking underground storage tanks contaminated the sand and gravel aquifer – the only aquifer present in the area. Granton was required to treat the water using a two-part system: an air stripper to remove VOCs and a Carbon filter to remove non-volatile contaminants. The village is considering drilling a new well because a different municipal well has coliform bacteria problems that are not responding to treatment.

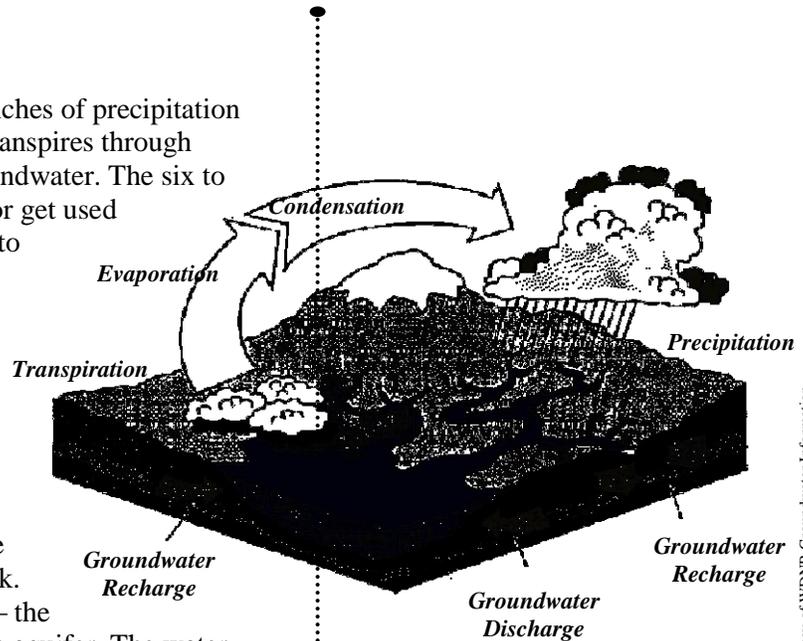


Figure 8 – The Groundwater Cycle

Aquifer – an underground layer of the earth that yields water.

VOCs (Volatile Organic Compounds) – organic compounds that vaporize readily under normal surrounding temperatures and pressures.

The minimum cost of drilling a new municipal well, including the well, wellhouse, and treatment is around \$250,000.

- ↓ Under Chapter NR 811, Wis. Adm. Code, suppliers of water for municipal water systems must require the abandonment of all unused, unsafe, or noncomplying private wells located on premises served by their system. Abandonment is required to prevent the well from acting as a direct conduit from the surface to groundwater and is implemented through local government ordinance.
- ↓ Under Chapter NR 812.26, Wis. Adm. Code, the permanent abandonment of unused or contaminated private wells or drillholes and noncomplying water systems is required under certain circumstances including when the well is contaminated and cannot be rehabilitated or if the well has been out of use for three years.

There are four classifications of public wells:

- ↓ *Public water utilities* – serving cities and towns (nearly 50 in the BBT).
- ↓ *Other-than-municipal community wells* – serving mobile home parks or large sub-divisions (about 20 in the BBT).
- ↓ *Non-transient non-community wells* – serving schools, day cares, factories or large office buildings; 25 or more of the same individuals every day for at least 6 months of the year (about 25 in the BBT).
- ↓ *Transient non-community wells* – serving restaurants, taverns, churches, parks; fewer than 25 of the same people per day at least 60 days of the year (over 300 in the BBT).

What the WDNR Is Doing

The wellhead protection program and well abandonment requirements are vital to protecting not only the groundwater, but also people's physical health and safety. The wellhead protection program is a preventive program that helps communities develop land use plans to prevent contamination of the local water supply. In the plan, the community identifies the recharge area, where contamination could occur, and through zoning, can restrict development within the wellhead protection area.

The Bureau of Groundwater and Drinking Water enforces a state code that legally requires owners of unused private wells to "abandon" these wells by filling them with impermeable material. This material prevents contaminants from entering the groundwater and threatening the community's fresh water supply, and also keeps people, especially young children, from falling into open wells.

For private wells, landowners are responsible for maintenance and abandonment, but the WDNR does contact owners of new wells to insure that any old and unused wells on the property have been properly abandoned. Public wells are inspected regularly and have the same strict abandonment requirements as do private wells.

The WDNR has more protections for groundwater in place than can be mentioned here, but here are a few examples. PALS (Preventive Action Limits) have been developed to identify problems well before contaminant levels reach the enforcement standards set by the state. The WDNR licenses and reviews work of well drillers and pump installers to insure that regulations are being followed. The WDNR cooperates on groundwater protection efforts with other agencies like the Department of Agriculture, the Department of Commerce, and the Department of Transportation.

What You Can Do

- ↓ Keep private wells clean and well maintained.
- ↓ Educational Materials are available at <<http://www.dnr.state.wi.us/org/water/dwg/gw/>>.
 - **Wisconsin Groundwater Study Guide** – curriculum for 6th-9th graders in earth science including activity sheets, overheads, posters and more.
 - **Groundwater Education Resources Directory** – listing of educational materials and contacts in and around the state.
 - **Well Abandonment Brochure** – brochure answering your questions with text, diagrams, and pictures.
- ↓ If you are a landowner, identify wells on your property that have not been properly abandoned, and have them filled according to regulations. Always report well abandonments to the WDNR. Check with your county Land Conservation Department (LCD) or the Natural Resources Conservation Service (NRCS) to learn about cost sharing opportunities they may offer.
- ↓ Teachers, find out about Project WET curriculum and activity guide (K-12). Call (715) 346-4978 or visit <<http://www.uwsp.edu/cnr/uwexlakes/wet/>>

Other resources for information about groundwater:

- ↓ *Wisconsin Rural Water Association* – <<http://www.wrwa.org/>>
- ↓ *University of Wisconsin Water Resources Institute* – <<http://wri.wisc.edu/>>
- ↓ *Wisconsin Department of Agriculture, Trade and Consumer Protection* – <<http://datcp.state.wi.us/>>
- ↓ *Better Homes and Groundwater* booklet – <<http://www.dnr.state.wi.us/org/water/dwg/gw/bhgwater.htm>>

Waste Management

The WDNR's Waste Management Program serves three main purposes:

- ⇓ Recycling, waste minimization and pollution prevention.
- ⇓ Proper management of solid and hazardous wastes and mining activities.
- ⇓ Voluntary compliance and participation in preferred waste management practices by providing a balance of technical assistance and compliance assurance activities.

While most of us think of solid waste management, they also work with medical/infectious waste, hazardous waste, and mining issues. And to save our landfills, they promote activities like recycling and home yard-waste composting.

In the past, "Reduce, Reuse, Recycle" was the mantra for encouraging the reduction of solid waste. As times have changed and the amount of solid waste going to landfills has increased, the motto has changed too. Today's version, "Reflect, Reduce, Reuse, Repair, Recycle," is a call to action. It says that while 40% of waste being kept out of landfills is excellent, Wisconsin citizens can do better. To do this, we must "rethink" the way we look at waste.

According to *A Study of the Future of Solid Waste Management*, completed in January, 2001, by the WDNR and UW-Extension (UWEX), there are several trends in solid waste management that Wisconsin will be facing in the coming years. Among these trends is their finding that

- ⇓ 60% of the municipal solid waste that is generated goes into landfills and the generation of this waste continues to increase every year.
- ⇓ Questions will continue to be raised about what level of government is essentially responsible for waste disposal/management, especially with a lack of "coordinated planning."
- ⇓ Of the alternatives to landfills, the success of recycling is expected to plateau, burn barrels contribute huge amounts of air pollutants, and home composting is significantly underused.
- ⇓ A great deal of controversy exists about who is to pay for refinements in waste management programs to correct these problems.

Recommendations by the WDNR and UWEX to face these coming trends include:

- ⇓ Continuing with education and outreach efforts to promote recycling and waste reduction.
- ⇓ Encouraging communities, manufacturers, retailers, and generators to develop systems for recycling more materials.
- ⇓ Working with stakeholders to support efforts to develop technologies that increase the efficiency of landfills.

The study also recommends that the legislature develop incentives to encourage increasingly efficient and non-polluting management of waste by communities, manufactures, retailers, and generators.

Each Wisconsin resident accumulates 1560 pounds of waste every year – 4.27 pounds per person per day.

Through recycling and composting, up to 40% of that is diverted from landfills – 14% more than the national average.

In 10 years, that waste diversion has avoided a possible need for 5 new average size landfills.

One of the chief reasons for the present environmental crisis is that great amounts of materials have been extracted from the earth, converted into new forms, and discharged into the environment without taking into account that 'everything has to go somewhere.'"

– Barry Commoner

Infectious waste – “solid waste which contains pathogens with sufficient virulence and quantity that exposure of a susceptible human or animal to the solid waste could cause the human or animal to contract an infectious disease.”

Medical waste – “infectious waste and other waste that contains or may be mixed with infectious waste.”

– According to Wisconsin statutes

What the WDNR Is Doing

Monitoring waste management in Wisconsin is a job that requires knowledge in many different areas. To begin, the Solid Waste Program encourages reduction, reuse, and recycling. For those wastes that do make it to landfills, the program monitors sites to make sure that waste management is going on in the most efficient way possible. This program's staff looks into the future to see what will need to be done to ensure proper management continues.

Recycling is an important part of this future, as are reducing and reusing materials. This calls for giving fresh thought to the problem of waste management, at home, in businesses and factories, and across communities. The change in thinking has been happening since long before 1998 when 75% of Wisconsin citizens said they were strongly committed to recycling.

The WDNR also monitors the disposal of medical/infectious and hazardous wastes. Medical/infectious wastes include things like contaminated, unused, or disinfected sharps (blades, hypodermic needles, etc.), bodily fluids, lab wastes, and more. Hazardous wastes include any toxics that pose a potential threat to ground and surface water, air, and soil. The WDNR ensures that such wastes are handled in such a way as to dispose of them safely and completely.

Finally, the WDNR regulates mining activities, both metallic and nonmetallic. The regulation of nonmetallic mining is especially important in the BBT where mining of sand and limestone are prominent and can impact the environment. For mines like these, a proactive reclamation program has been put into effect, requiring mines to have a plan in place for what will happen to their site when the mine closes.

What You Can Do

↓ To find out who to contact for questions about things like hazardous waste transportation and requirements and solid waste requirements or recycling, visit <<http://www.dnr.state.wi.us/org/aw/wm/contacts/>>.

↓ Read about the future of solid waste management. Visit <<http://www.dnr.state.wi.us/org/aw/wm/publications/wafuture.htm>>.

↓ Solid Waste Alternatives

Recycling – to find out where in your area to take your recycling: <<http://www.dnr.state.wi.us/org/aw/wm/markets/category.html>>

Home Composting – to learn about composting and its benefits:

<<http://www.uwex.edu/shwec/>>

<<http://www.nhq.nrcs.usda.gov/CCS/backyard.html>>

<<http://www.ftw.nrcs.usda.gov/compost.html>>

↓ If you have creative ideas for reducing waste, the Waste Reduction & Recycling Demonstration Grant Program is available from the WDNR: <<http://www.dnr.state.wi.us/org/caer/dfa/Ef/recycle/>>.

↓ For a report summary from three workshops on intelligent consumption, visit <<http://www.wisconsinacademy.org>>.

↓ For fun facts on forestry and recycling, visit the American Forest & Paper Association web page at <<http://www.afandpa.org>>



Fish Advisories

Contaminants produced in factories and released from products that we throw away have to go somewhere. Unfortunately, that “somewhere” is frequently into our water bodies, where it enters fish through the water and the food they eat and is then deposited in their fatty tissues.

Even though PCBs were banned 25 years ago and their levels in Wisconsin waters are declining, they are still present in certain water systems. This is because PCBs do not break down easily. Over time their concentrations build up as larger fish eat smaller fish and accumulate the additional PCB concentrations of each small fish, so larger, older fish typically have the highest levels of contamination. While at low levels the PCBs are not a great concern, in these increased concentrations they pose health risks.

Similarly, mercury, though it occurs naturally at levels that do not effect us, concentrated in this way, delicious fish can be unhealthy. Mercury is released into the air when power plants burn coal, when mercury-containing waste is burned and when mercury thermometers get broken and not cleaned up properly.

What levels of mercury and PCBs are considered unsafe? It varies. Age and gender of the person eating the fish and the size, location, and type of fish are all indicators of whether to eat fish or how much to eat. It is advised that women of childbearing years and young people under the age of 15 limit the amount of consumption. Men, and women beyond childbearing years may have a much less restricted diet of fish from Wisconsin waters.

Mercury Advisories in the BBT – 2001

- ↓ Black River (Trempealeau)
- ↓ Black River – Hwy. 29 to Arbutus (Clark)
- ↓ Diamond Lake (Taylor)
- ↓ Harkner Flowage (Jackson)
- ↓ Lake Arbutus (Jackson & Clark)
- ↓ Marinuka Lake (Trempealeau)
- ↓ North Flowage (Monroe)
- ↓ Pigeon Creek Flowage (Jackson)
- ↓ Potters Flowage (Jackson)
- ↓ Ranch Creek at Lost Lake (Monroe)
- ↓ Richter Lake (Taylor)
- ↓ Sackett Lake (Taylor)
- ↓ Sherwood Lake (Clark)
- ↓ Townline Flowage (Jackson)
- ↓ Upper Cranberry Flowage (Jackson)
- ↓ Whitetail Flowage (Jackson)

PCB Advisories in the BBT – 2001

- ↓ Black River – below Black River Falls to the Mississippi River (Trempealeau & Jackson)
- ↓ Trempealeau River – Arcadia to the Mississippi River

PCBs (polychlorinated biphenyls) – man-made contaminants, banned in 1976, that accumulate in the sediments of lakes and streams and in the tissues of fish.

Mercury – contaminant, which occurs in larger doses than is natural because of such things as burning of fossil fuels, that accumulates in the tissues of fish.

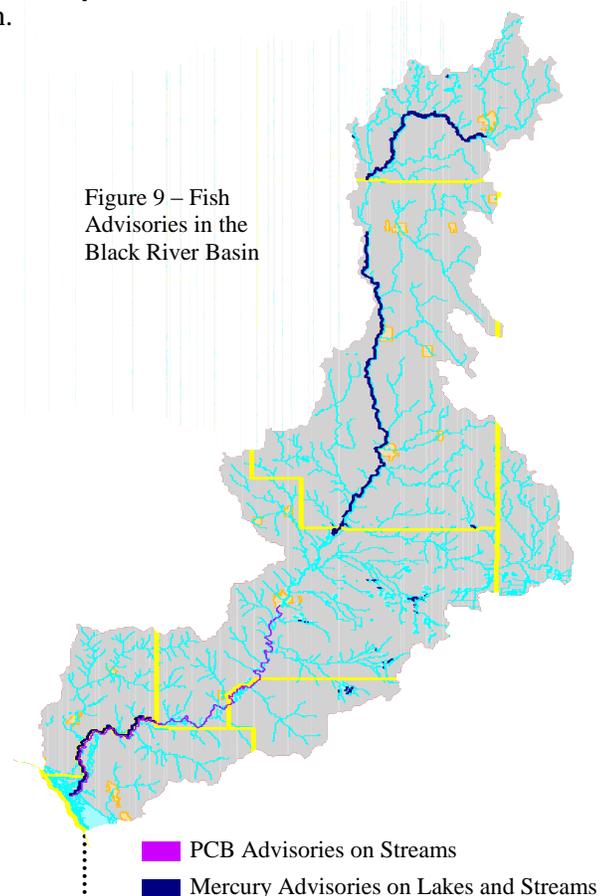
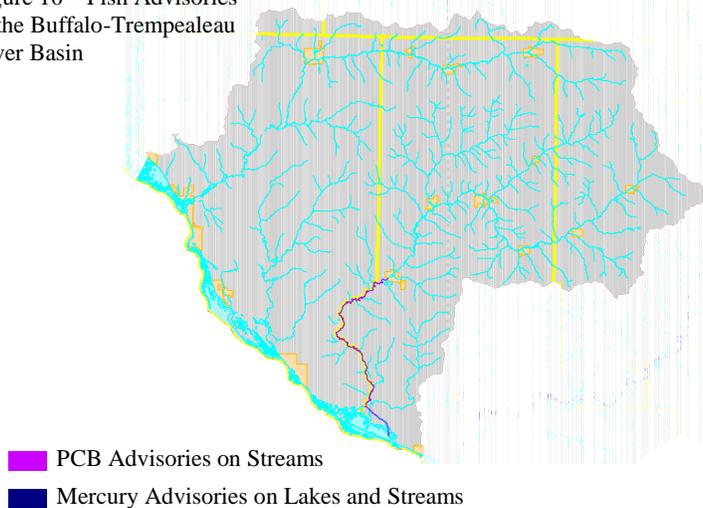


Figure 10 – Fish Advisories in the Buffalo-Trempealeau River Basin



For more details and updates about advisories on Wisconsin lakes and streams, see “Important Health Information for People Eating Fish from Wisconsin Waters, 2000” and the “Mercury Advisory Update” on the DNR web site.

(Buffalo & Trempealeau)

What the WDNR Is Doing

As with so many other things, the key to keeping people safe from contaminants in fish from Wisconsin waters is prevention. In the same way that the use of PCBs was banned in 1976, the WDNR has proposed a rule to regulate the amount of mercury that can be discharged from coal-fired power plants. “The proposed rule would cut mercury emissions by 30 percent within 5 years, 50 percent in 10 years and 90 percent in 15 years from four electric utilities in the state with significant mercury emissions (*DNR News*, 2001).”

For a time, it seemed as though nothing could be done about the mercury and PCBs already in waterbodies. But recent efforts to clean up major problem sites by removing large amounts of contaminated sediment demonstrate the hope that we can reduce the impact of retained contaminants on fish and the people who eat them.

In the meantime, WDNR staff regularly test many waterbodies in the state for mercury and PCB levels. Though it would not be prudent to test all of the 15,000 lakes and many miles of streams, they target sites that receive a great deal of fishing traffic and especially those waterbodies that have a known or suspected source of contamination.

In this way, the WDNR is able to keep citizens of Wisconsin and those who come to the state to fish its waters aware of the potential health risks of eating too much fish from contaminated sites. This awareness comes in the form of fish consumption advisories and additional resources with information about the effects of mercury and PCBs and how to prepare fish to remove as much of the contamination as possible. These resources and more can be found on the WDNR web site, <www.dnr.state.wi.us>.

What You Can Do

- ↓ *Who to contact:* Community Mercury Reduction, (608) 267-7639, or Mercury Thermostat Recycling and Pledge Program, (608) 267-0802.
- ↓ Check the WDNR web page annually to obtain updated mercury and PCB advisories on Wisconsin waters.
- ↓ Learn the best ways to prepare and cook fish that may be contaminated with PCBs or mercury.
- ↓ *Mercury in Your Community and the Environment* – This is a 53-page document for educators at <<http://www.dnr.state.wi.us/org/caer/ce/eeek/teacher/mercury2.htm>>.
- ↓ Recycle mercury from household products that use it.
- ↓ **Wisconsin Mercury Recycling Program** – In La Crosse, (608) 785-9855 or in Eau Claire, (715) 268-4374.
- ↓ Conserve energy to reduce mercury released from coal-fired electricity plants

Air Emissions

The air we breathe. We rarely think about it. How can we be sure it is clean and safe? What do we do if it is not? For some, clean air is even more important because of pulmonary health problems like asthma or emphysema. For others who live in urban communities, getting clean air is a constant concern.

In the Black-Buffalo-Trempealeau River Basin, the concerns that urban communities have about air do not generally come into play. However, other concerns exist in rural Wisconsin. Agricultural animal waste, nonmetallic mining, and coal-burning power plants all operate in the basin and near several communities, potentially effecting the air they breathe. Numerous households, possibly your neighbors, burn refuse and yard waste and the impacts move closer to home.

The WDNR's Bureau of Air Management monitors the activities of industries and private citizens to protect the air for all of us. As in all enforcement of regulations, their goal is to prevent one business or individual from infringing on the rights of any other business or individual. And the air and these rights are extremely important to protect.

To do so, the Bureau is divided into eight sections (*right*). The first four “serve ‘industrial process focuses,’” meaning that they permit and monitor a wide range of businesses and industries within a certain limit for air emissions and then monitor them regularly ensure they are complying with their limits.

One such permit is currently being considered. In June, the Natural Resources Board, the leading body of the WDNR, voted to authorize public hearings about a proposal to cut mercury emissions by coal-burning power plants over the next 15 years.

Coal-burning power producers derive electricity by burning coal. Certain emissions, like mercury, naturally occur as a result of burning coal and the technology has not yet been developed that will meet these new emissions standards. The WDNR is proposing that restrictions be placed on coal-burning power plants to reduce their mercury emissions by 30% in 5 years, 50% over 10 years, and finally 90% within 15 years. The goal of these restrictions is to protect the air from any unnecessary mercury emissions, and in the long run, keep mercury out of Wisconsin's lakes and streams.

Over the last few months, many informational meetings have been held to educate the public about mercury emissions and goals for protecting air quality. The meetings were also a chance to get feedback from the public on the subject.

The WDNR hopes that by putting these restrictions in place, it is giving power companies the incentive to develop technology that will meet emissions and air quality goals for the future. In addition, by setting an example against mercury emissions in Wisconsin, the WDNR hopes to help shape the way the rest of the country looks changing their approach to mercury in the air.

The eight sections of the Bureau of Air Management:

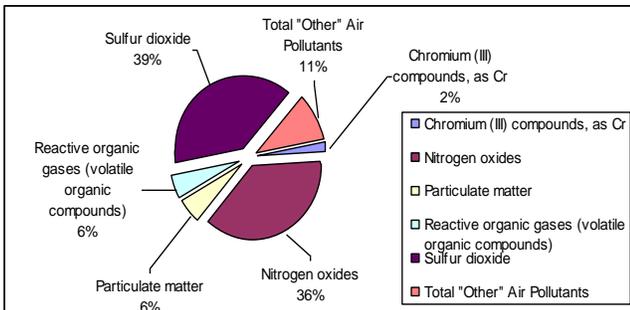
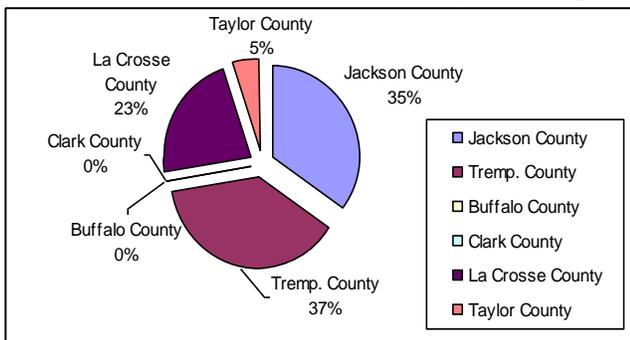
- ⇓ **Combustion Process Section** – production of electricity, steam, natural gas, pulp & paper, waste & wastewater.
- ⇓ **Printing & Coating Section** – coating of leather, machinery, metals, paper, wood furniture.
- ⇓ **General Manufacturing Section** – manufacturing facilities for chemicals, foods, rubber, plastic, and foundries.
- ⇓ **Small Business Section** – businesses working in asbestos, asphalt, dry cleaning, landfill, mining, rock crushing.
- ⇓ **Environmental Studies Section**
- ⇓ **Monitoring Section**
- ⇓ **Ozone & SIP Development Section**
- ⇓ **Management Section**



A coal-burning power plant located in western Wisconsin. Note the piles of coal in the foreground.

Figure 11 – Air Emissions by County; In Buffalo, Clark, La Crosse, Jackson, Taylor, and Trempealeau Counties, 195 sources (monitored businesses and industries) report air emissions to the WDNR air inventory database.

Figure 12 – Total Air Pollutant Emissions in Buffalo, Clark, Jackson, La Crosse, Trempealeau, and Taylor Counties; This table excludes the emissions of carbon dioxide, which make up 99% of the total pounds of air pollutant emissions in the counties.



What the WDNR Is Doing

As previously stated, the WDNR has four air management sections that monitor businesses' and industries' toxic air emissions. The types of business and industry vary widely and so do their emissions and impacts on air quality. Staff members specialize in one of the four areas to be better able to monitor air emissions and to better understand what can be done to prevent air quality issues.

Beyond business and industry, when air quality issues arise, other sections of the Bureau of Air Management take over.

Environmental Studies Section

This section takes on air quality issues as they come up and studies the environmental impact of the sources. They try to stay ahead of problems with air quality by collecting accurate data and looking at it not only on a local or state level, but also on a global level. Some

ways that they do this include toxic studies, biomonitoring, energy policy issues, and health impact assessments.

Monitoring Section

The monitoring section regularly collects data from stations all over the state to get a local as well as a big picture view of the air quality in the state. They are able to detect when problems arise by comparing data and noting toxics and inconsistencies in the air.

The Ozone & SIP Development Section

“SIP” stands for state implementation plans, which are designed to develop action plans for controlling major air pollutants. Their major role now is in working with ground-level ozone, or smog, but that role is subject to change as air quality concerns change.

The Management Section

As the name suggests, this section handles things like budgets, finance, grant administration, rules, data, and personnel.

More ideas for helping to reduce smog and improve air quality:

- ⇓ Turn off your car instead of letting it idle, and don't warm up your car by idling. You'll save gas and the air!
- ⇓ Keep live plants indoors or plant a tree outdoors to improve air quality.

What You Can Do

- ⇓ Who to contact for K-12 and community mercury education: Al Stenstrup, <stensa@dnr.state.wi.us>, (608) 264-6282.
- ⇓ *The Green(er) Machine* – free guide to “green” driving and automobile maintenance (excellent for drivers education instructors); write to Wisconsin DNR, CE/6 Box 7921, 101 South Webster Street, Madison, WI 53707-7921, (608) 264-9258.
- ⇓ *Where's the Air?* – CD-ROM tool teaching about ozone & air quality. All WI schools have been sent a copy (check with library or media center) or you may order a copy. For more information – <<http://www.dnr.state.wi.us/org/caer/ce/ee/teacher/wtair.htm>>.
- ⇓ Celebrate Clean Air Month – May.
- ⇓ Schools + Businesses = Clean Air! – <<http://www.dnr.state.wi.us/org/aw/air/vol/schbus.htm>>.

Outdoor Recreation Safety

“Because education is one of the most important tools we have in reducing injuries, deaths, and accidents, the Department of Natural Resources sponsors recreational safety education classes to educate the public on how to be safe, knowledgeable, and responsible in their recreational pursuit” (Law Enforcement, 2001).

Safe, knowledgeable, and responsible. Those are things that we all want to be when we are out having fun. Even more than that, those are things that we want everyone else to be when we are out having fun, but not everyone is. So, the more prepared we are, the more ready we will be to handle any situation that might come up.

Numerous outdoor recreation safety training opportunities are available. Courses that can be taken include:

- ⇓ ATV – Minimum 6 hours of coursework about ATV operation and maintenance, safety equipment, ATV handling and riding skills, emergency skills, regulations, responsibilities, ethics; Age: 11 years or older.
- ⇓ Boating – Under consideration to become mandatory; Minimum 8 hours of coursework about boats, navigation basics, boating preparation, boating skills (knots, anchoring, etc.), safety and emergency skills; Age: 10 years or older.
- ⇓ Bow Hunter – Not mandatory in Wisconsin, but required in many other states; Minimum 10 hours of coursework about responsibilities, equipment, preparation, marksmanship, methods, emergency skills, and field care of game; Age: 12 years or older.
- ⇓ Hunter – Mandatory; Minimum 10 hours of coursework about safety techniques, marksmanship, emergency management, accident prevention, responsibilities, wildlife information, care of weapons and harvested game; Age: 12 years or older.
- ⇓ Snowmobile – Mandatory; Minimum 6-8 hours of coursework about snowmobile maintenance, operation and handling, equipment requirements and recommendations, regulations, ethics, emergency and survival skills; Age: 11 years or older.
- ⇓ Trapping – Usually 3-4 evenings plus 1 weekend morning or afternoon; background on trapping, furbearer and other wildlife information, trapping how to and safety, working with the pelt, trap setting practice; Age: 12 years or older.

Outdoor recreation safety courses are offered seasonally in most counties. Visit the Law Enforcement web page well in advance of the season you are interested in to learn more about dates and times of courses in your area. To learn more about which recreation safety courses are available in electronic formats, read the section entitled, “Boating,” on page 52.

Statewide in the year 2000:

93 injuries and 25 fatalities resulted from boating accidents.

21 firearm related accidents happened during the gun deer season. Of these accidents, 2 were fatal.

38 fatal snowmobile accidents were reported. The leading contributing factors were excessive speeds and alcohol consumption.

Bureau of Law Enforcement

Mission

To protect, enhance and promote the safe and wise use of our natural resources through enforcement, education and community based wardening that guarantees fair and equal treatment.

Ethics

To uphold the highest ethical standards we will never betray the badge, our integrity, our character, or the public trust. We will always have the courage to be accountable for our actions, individually and as a warden service.

What the WDNR Is Doing

Conservation Wardens are known for their enforcement of environmental laws. They work many evenings, weekends, and holidays to make sure that while people are enjoying the outdoors, they are doing so safely and legally. They wear many other hats besides enforcement though. One major focus of the wardens is education.

Safety education courses are coordinated and sometimes taught by Conservation Wardens. Certified volunteer instructors teach many of the classes. All ages are encouraged to attend the courses either to learn skills and gain information for the first time or to brush up on skills that have not been used or used correctly in some time. The wardens regularly evaluate courses to be sure the content is pertinent and helpful to the participants. In addition, they attend sportsmen's club meetings throughout the region and get involved in the activities that they hold.

In the BBT, the wardens set up displays at events like county fairs, the state fair, and festivals in other parts of the state. At these events, they set up wildlife displays and educate fair-goers about the wild plants and animals that can be found in the state. The wardens have constructed small log buildings at several of the county fairgrounds to better display their information and educate the public about local wildlife. Near these buildings, they have built bat houses to provide shelter to these natural predators and planted small plots of native prairie for demonstration purposes.

The Conservation Wardens do a great deal of work with children. Some hunting programs the wardens coordinate are Jakes Day, a turkey-hunting clinic for kids; Green Wing, a duck hunting event; and youth pheasant hunts. They also go to the schools to tell the children about wildlife and do demonstrations, such as field dressing an animal, for them. For teenagers looking for potential careers, student ride-alongs are offered so they can get a real life look at what Conservation Wardens do (Cork, 2001).

What You Can Do

- ⇓ Visit the Law Enforcement web page to learn about how you can sign up for a safety training course, brush up on safety tips, or find more statewide statistics. Go to <<http://www.dnr.state.wi.us/org/es/enforcement/>>.
- ⇓ Check out ways to be safe while having fun in Wisconsin's state parks. Visit <<http://www.dnr.state.wi.us/org/land/parks/other/safety.html>>.
- ⇓ Become a volunteer safety instructor and do what you can to properly prepare future hunters, boaters, ATV, and snowmobile users for safe and responsible recreation in the future. To find out more, visit <<http://www.dnr.state.wi.us/org/es/enforcement/safety/safvol.htm>> or contact Thomas Bokelman at PO Box 4001, Eau Claire, WI 54702-4001, (715) 839-3717.

Forest Fire Protection

On a daily basis, we do not really think about how each and every one of us relies on fire crews to protect us in case of a fire. In the event of a forest fire though, those same fire crews need everyone's help – before, during and after the fire. Prevention is the key.

Smokey Bear has been advising for years, “Only you can prevent forest fires.” But it goes beyond putting out the campfire. Forest fire prevention appears in many other forms:

- ⇓ Thinning out the dead trees and branches – they are ready fuel for a forest fire.
- ⇓ Making sure driveways are wide enough and provide ample space for emergency vehicles to turn around.
- ⇓ Rake pine needles, leaves, branches, and other debris away from the house.

When a fire has started, wind and dry weather can be huge contributors to the spread of wildfires and create especially dangerous conditions for firefighters and the people they are protecting. The most important things in the event of a forest fire are the safety of the people and the rescue crews fighting the fire. At times, weather conditions create a situation in which people's possessions cannot be saved. Though everything possible is done to save structures, they should and do always come second for fire crews.

Only about half of the BBT is in what is called an Intensive Forest Fire Protection Area. A forest protection area is one where the main form of land cover is forest, thereby increasing the likelihood of large forest fires. In the BBT, the forest protection area consists of parts of Clark, Jackson, and Monroe Counties, and the WDNR is in charge of protecting it from forest fires. Counties in the basin but outside of this area, including much of Buffalo, La Crosse, Taylor, and Trempealeau, have much fewer trees and are protected by local fire departments.

In those forest protection areas of Jackson, Clark, and Monroe Counties, the top three causes of fires are incinerator debris burning, brush burning, and trash burning. In all of these cases dangerous fires can be kept in check by taking special care when items are burning. Staying near a controlled fire and keeping other debris away from it are easy ways to avoid letting fires get out of control. One other way to avoid the problem altogether is to find a way, other than burning, to dispose of trash, brush, and debris.

Other leading causes in the forest protection area include truck and diesel exhaust, logging equipment and equipment sparks, building fires, powerlines, railroads and lightning. While some of these are natural occurrences, the others can be avoided by taking preventive safety measures, taking extra time to check equipment, and paying close attention to surroundings.

Statewide, on lands protected by the WDNR, over 90% of wildland fires are human-caused.

On average, 1500 fires burn 5000 acres in the state annually.

In the BBT's fire protection area fires in the last 5 years burned:

- ⇓ 340.5 acres Clark County
- ⇓ 334.0 acres Jackson County
- ⇓ 265.5 acres Monroe County

The typical fire season is from late March to May, with a secondary fire season from late September to November. The possibility of large fires exists year round though, and people should *always* be careful.

Levels of Protection (LOP)

LOP 1 – areas with fuel types similar to jack pine, red pine and white pine stands, also fuel types similar to scrub oak with conifer.

LOP 3 – areas with fuel characteristics similar to hardwood stands, including stands of spruce/fir, maple/birch, elm/ash/soft maple, and aspen/birch, without significantly high fire history or number of improved parcels.

Co-op – areas with fuels similar to marshlands, also some grasslands, agricultural lands, and CRP lands; local fire departments are primarily responsible for co-op areas.

What the WDNR Is Doing

The WDNR works on many fronts to protect the public from forest fires in intensive forest fire protection areas. Education is an important one. Smokey Bear is on hand in schools and at events to educate kids and their families about the importance of fire safety.

WDNR fire crews also prepare year-round for the possibility of fighting fires, through regular training and gaining experience fighting fires in the western part of the country during their dry seasons. The fire crews maintain fire fighting equipment from the personal protective gear they wear to the tools and heavy machinery that they use to stop forest fires.

Several lookout towers are located throughout the intensive forest fire protection area and are staffed by the WDNR as fire weather dictates. The person in the watchtower stays on the lookout every day, and if a fire is spotted, relays the information to the fire dispatch office, located in the WDNR service center in Black River Falls. The fire dispatch office is staffed year round in case of fires so fire and

rescue crews can be sent quickly and efficiently to the site or sites that need the most attention.

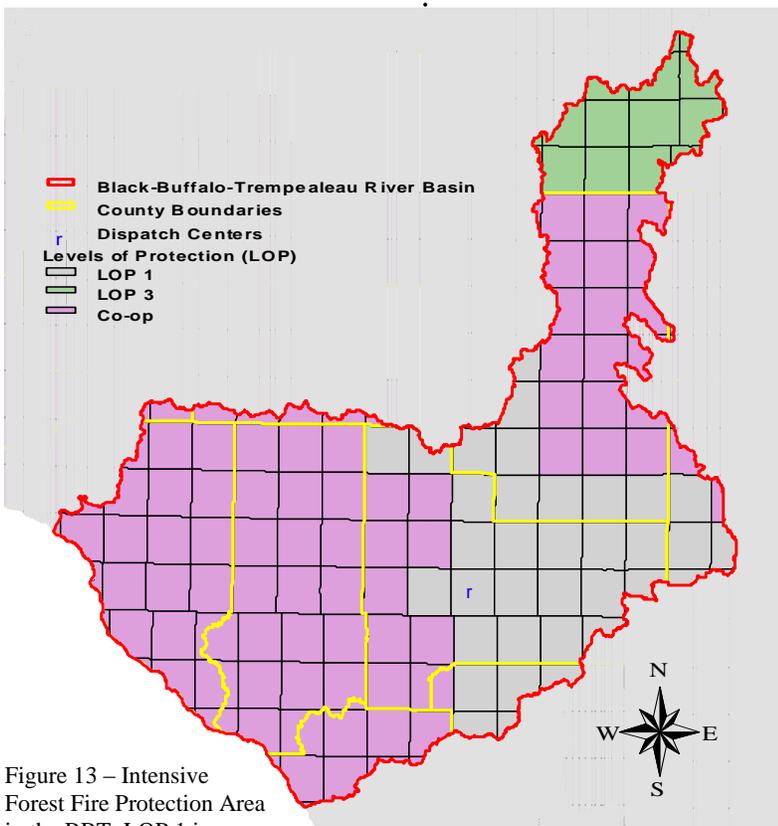


Figure 13 – Intensive Forest Fire Protection Area in the BBT; LOP 1 is considered the Intensive Forest Fire Protection Area, because pine dominated forest tends to be drier than a dominant hardwood area might be.

What You Can Do

⇓ Learn more about what you can do to protect your home from fires. Visit, <<http://www.dnr.state.wi.us/org/land/forestry/fire/homefire.htm>>.

⇓ Firewise For Educators – online curriculum and other educational materials, <<http://www.firewise.org/www/default2.htm>>.

⇓ Volunteer as a fire warden – Each township has a volunteer fire warden. It's a great way to meet neighbors and teach people about fire safety at the same time. Call (715) 284-1409 or (715) 284-1410 to find out more about where help is needed.

⇓ Get a burning permit and understand the regulations that go with it. A permit is needed to legally burn refuse, so why not learn how to do so safely at the same time? To get a burning permit, contact your local fire warden or visit a nearby Wisconsin DNR service center.

⇓ Protect the health of the wooded areas on your property. By cutting out dead wood and thinning the brush, you can be sure there will be less burnable fuel in the event of a forest fire.

References

- Commoner, Barry. 1974. *Closing Circle: Nature, Man, and Technology*. Bantam Books: New York.
- E-mail from Laura Chern. December 18, 2001. Wisconsin Department of Natural Resources, Bureau of Drinking Water & Groundwater.
- Conversation with Ron Cork. November 2, 2001. Wisconsin Department of Natural Resources, Bureau of Law Enforcement.
- Conversation with Jennifer Hamill. October 30, 2001. Wisconsin Department of Natural Resources, Bureau of Air Management.
- Holtan, Paul. Ed. 2001. "Proposed mercury rule is subject of September 5, 6, 11 public information meetings." *DNR News*. Wisconsin Department of Natural Resources.
- . 2001. "Work to begin this week cleaning up PCBs from millpond." *DNR News*. Wisconsin Department of Natural Resources.
- Conversation with John Lacenski. November 2, 2001. Wisconsin Department of Natural Resources, Bureau of Law Enforcement.
- Muir, John. 1998. "John Muir Exhibit." <<http://www.sierraclub.org>>.
- Conversation with Larry Schaefer. October 5, 2001. Wisconsin Department of Natural Resources, Bureau of Drinking Water and Groundwater.
- E-mail from Gary Steffen. October 25, 2001. Wisconsin Department of Natural Resources, Division of Forestry.
- Wisconsin Department of Natural Resources. 2001. "DNR Mercury News." <<http://www.dnr.state.wi.us/org/caer/ce/mercury/news.htm>>.
- Wisconsin Department of Natural Resources. 2001. "Fish Consumption Advisories." <<http://www.dnr.state.wi.us/org/water/fhp/fish/advisories/>>.
- . 2001. "Mercury Advisory Update." <<http://www.dnr.state.wi.us/org/water/fhp/fish/advisories/mercuryup.htm>>.
- Wisconsin Department of Natural Resources, Bureau of Air Management. 2001. "Air Management Program." <<http://www.dnr.state.wi.us/org/aw/air/>>. August.
- Wisconsin Department of Natural Resources, Bureau of Law Enforcement. 2001. "Bureau of Law Enforcement." <<http://www.dnr.state.wi.us/org/es/enforcement/index.htm>>.
- Wisconsin Department of Natural Resources, Bureau of Waste Management. 2001. "Waste Management Program." <<http://www.dnr.state.wi.us/org/aw/wm/>>.
- . 1999. "Wisconsin Recycles: Citizens Speak Out in Words and Actions."
- Wisconsin Department of Natural Resources, Bureau of Waste Management, and University of Wisconsin-Extension, Solid & Hazardous Waste Education Center. 2001. "A Study of the Future of Solid Waste Management: A Report to the Wisconsin Legislature."
- Wisconsin Department of Natural Resources, Division of Forestry. 2001. "Fire Prevention and Safety." <<http://www.dnr.state.wi.us/org/land/forestry/fire/fireps.htm>>.
- Wisconsin Division of Health and Wisconsin Department of Natural Resources. 2000. "Important Health Information for People Eating Fish from Wisconsin Waters, 2000." Madison.